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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,021	08/17/2001	Chang Ryul Lee	2669-0112P	2749

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EXAMINER	
XIAO, KE	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/931,021	LEE, CHANG RYUL	
	Examiner	Art Unit	
	Ke Xiao	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-6 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-6 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding **Claim 10**, the claim recites the limitation "from said CPU". There is no support in the specification that the switch generates a signal *from* the CPU. The switch generates a signal for the CPU or to the CPU, and causes the CPU to generate additional signals but the switch does *not* generate a signal *from* the CPU. For the purposes of prior art rejection the limitation will be interpreted as -- for the CPU --.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4-6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwok (US 5,280,276) in view of Pearson Jr. (US 4,839,805), Vaghefi (US 6,429,851), and Gilbert (US 5,463,409).

Regarding independent **Claim 10**, Kwok teaches a multi-directional ball switch (Kwok, Fig. 7) which comprises:

a panel having two diagonally located fixture, each of which has an orthogonal shaft-like hole (Kwok, Fig. 7 element 14 and 18);

a ball knob placed on the panel (Kwok, Figs. 6-7 element 32);

a conversion means that transforms the rotation of the ball knob into an electrical, signal the conversion means including two rotation shafts that are inserted into the orthogonal shaft holds of the two diagonally located fixture respectively (Kwok, Col. 4 lines 1-5); and

two click encoders into which ends of the two rotation shafts are inserted, respectively wherein bottoms of the two click encoders are fixed on the panel (Kwok, Fig. 7 element 18);

a CPU connected to the conversion means (Kwok, Col. 4 lines 27-49); and

a signal generation section connected to the CPU (Kwok, Col. 4 lines 27-49).

Kwok fails to teach a four diagonally located fixtures and four rotation shafts and four click encoders. Pearson Jr. teaches the use of four click encoders in a similar ball switch input device (Pearson Jr. Fig. 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to duplicate the two coordinate detectors of

Kwok to four as taught by Pearson Jr. in order to further modulate the function of the encoders (Pearson, Col. 2 line 61 to Col. 3 line 12).

Kwok in view of Pearson Jr. fails to teach that the CPU is connected to a sound generation section. Vaghefi teaches a trackball system with a sound-generating portion including therein (Vaghefi, Col. 3 line 59 to Col. 4 line 38). It would have been obvious to one of ordinary skill in the art at the time of the invention to have attached the sound generation device to the computer as taught by Vaghefi in the mouse system as disclosed by Kwok because it would add an additional form of feedback to the user.

Kwok in view of Pearson Jr. and Vaghefi fails to teach a switching section that restrains the rotation of the ball knob and generates an output value for the CPU. Gilbert teaches a switching section that makes physical contact with a track ball, which generates and output value for the CPU when tit is pressed and since there is physical contact the switch inherently restrains the movement of the ball (Gilbert, Fig. 2 Col. 2 lines 50-56, Col. 3 lines 26-36). It would have been obvious to one of ordinary skill in the art to have used the switching section as recited by Gilbert in the device of Kwok in view of Pearson Jr. and Vaghefi in order to allow for improved support and activation of the ball knob (Gilbert, Col. 1 line 50 - Col. 2 line 4).

Regarding **Claim 4**, Gilbert further teaches that the switching section comprises:

a supporting plate having a hinge hole (Gilbert, Fig. 2 element 21);

a hinge shaft that is inserted into the hinge hole (Gilbert, Fig 2 element 22);

a stopper that is equipped with a supporting ball (Gilbert, Fig. 2 element 6); and

a press sensor that is installed on the support plate (Gilbert, Fig. 2 element 26).

Gilbert does not disclose that the supporting ball is located at the center of the supporting plate nor does he disclose that the press sensor is installed between the top of the supporting plate and the down surface of the panel. Since the applicant has fail to disclose the supporting ball being located at the center of the supporting plate and the press sensor being installed between the top of the supporting plate and the down surface of the panel provide an advantage, are used for a particular purpose, or solve a stated problem, it is an obvious matter of design choice to have the supporting ball be located at the center of the supporting plate and the press sensor installed between the top of the supporting plate and the down surface of the panel. It would have been obvious to one of ordinary skill in the art at the time of the invention to have place the supporting ball at the center or any other position on the supporting plate because it would have been able to press down on the ball equally as well. Also it would have been obvious to one of ordinary skill in the art at the time of the invention to have the press sensor being installed between the top of the supporting plate and the down surface of the panel or anywhere else where it can detect press of the switch because it would be able to perform the task of detecting a press action equally as well.

Regarding **Claim 5**, Kwok in view of Pearson Jr. further teaches that the rotation shafts are installed to support both sides of the ball knob so that the ball knob can rotate in only one direction of up/down or left/right at a time (Kwok, Fig. 7, Pearson Jr. Fig. 2).

Regarding **Claim 6**, Kwok in view of Pearson Jr., Vaghefi and Gilbert further teaches that the four click encoders are constructed to generate a click sound or a click vibration while the rotation shafts are rotating (Vaghefi, Fig. 17, Col. 3 line 59 to Col. 4 line 18, Col. 5 lines10-25).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yokoji et al (US 6,909,422)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571) 272-7776. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 9th, 2006 - kx -

SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER